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ABSTRACT

This document consists of four papers presented during a symposium on learning research moderated by Keith Johansen at the 1996 conference of the Academy of Human Resource Development (AHRD). "A Goal-Based Scenario (GBS) as a Unified Approach to Integrated Skills Development Training: Andersen Consulting's BanDS School" (Kurt J. Olson, Jeffrey M. Bryan) describes Andersen Consulting's approach, a unique application of GBS training design that integrates skill development across competency areas. "Job Instruction Reconsidered: Usefulness and Limitations of the Dominant Type of Structured OJT" (Jan A. De Jong) scrutinizes the organizational and educational premises of the dominant approach to structuring OJT (on the job training) learning--the "experienced-colleague-as-an-instructor" or "job instruction" model. "Structured OJT Competencies" (Jong Cheul Yang, Gary N. McLean) reports a survey of U.S. line experts and training professionals who identified competencies needed by both groups in supporting OJT and identified gaps between desired and current levels of expertise. "A Proposed Model of Approaches to Frontline Employee Development" (Christopher Washington) categorizes and describes ways in which frontline employees are influenced, directed, or selected to participate in development activities, managers' roles, and expected employee developmental outcomes. Papers contain references. (YLB)

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SYMPOSIUM
[10] LEARNING RESEARCH

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A Goal-Based Scenario as a Unified Approach to Integrated Skills Development Training: Andersen Consulting's BanDS School
Kurt J. Olson, Andersen Consulting
Jeffrey M. Bryan, Andersen Consulting

Job Instruction Reconsidered: Usefulness and Limitations of the Dominant Type of Structured OJT
Jan A. DeJong, Utrecht University

Structured On-the-Job Training Competencies
Jong Cheul Yang, The Wyatt Company, Korea Branch
Gary N. McLean, University of Minnesota

A Proposed Model of Approaches to Frontline Employee Development
Christopher Washington, Ohio State University

Academy of Human Resource Development
1996 Conference
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A Goal-Based Scenario as a Unified Approach to Integrated Skills Development Training: Andersen Consulting's BAnDS School

Kurt J. Olson
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Andersen Consulting's approach to training and employee skills development within the framework of Goal-based Scenarios is a unique application of GBS training design that integrates skill development across competency areas. Advantages of this approach are reflected through the development of skills among Change Management, Process, and Technology competencies, building understanding of value added by other competency areas, and enhancing the ability to work in cross-competency teams.

The need for an integrated approach to building consultant skills covering multiple competency areas lead to Andersen's pursuit of a unique approach to the application of GBS techniques. Consultants with 30-36 months experience with the firm were chosen from the Change Management, Process, and Technology competencies to foster understanding and appreciation of the requirements of and the value added by the other competency areas.

Andersen Consulting's business integration competency practices - Technology, Process, Change Management, and Strategic Services - anchor the organization as a market leader amid a sea of competition. In combination with in-depth industry knowledge, these competencies ensure that value is delivered to clients through the Business Integration (BI) model.

Each competency is a unique collection of skills, methodologies, knowledge capital, and experience that in combination can achieve an outcome valued by a client. Within the competency practices are 50 specific BI competencies that are central to Andersen Consulting's long-term competitive success.

Competencies are what Andersen Consulting does; service offerings are what Andersen Consulting's clients and the marketplace buy. Service offerings, such as Systems Integration, Business Process Management, and Enterprise Transformation, are comprised of a set of competencies that deliver significant business outcomes. Clients want solutions; service offerings provide them.

Andersen Consulting's competencies are the key differentiator, separating the organization from its competitors. These competencies are at the heart of the organization's marketplace success and underpin its vision of one global organization. The roles of consultants, and the skills required from them, have changed dramatically over the years.

In order to maintain Andersen's lead position in an extremely competitive industry, and to accommodate the rapid pace of changing customer requirements, Andersen Consulting has focused on a unique training process to bring all the myriad combinations of competency experts together.

As the table below shows, the role of just one level of Andersen's consultants has changed immensely over a short period of time.

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Engagement Characteristic	1985	1995
Engagement Length	2 years	5 years
Number of people	25	200
Number of Releases	1	Several
Software	Either Custom or Package	Custom and Package
Management	Project Management	Program Management
Architecture	Occasionally Custom	Usually Custom
Business Process	Discuss Process Implications of System	Business Process Re-engineering
Success	Conversion on Time and Budget	Delivering Business Benefits Realization
Platform	Mainframe	Client/Server

Andersen Consulting

Andersen Consulting (AC) is a global management and technology consulting organization whose mission is to help it's clients change to be more successful. Our mission is simple, yet far-reaching: change can encompass anything from the operational streamlining to enterprise transformation. Regardless of the scope of change, we help our clients achieve success. As part of Arthur Andersen's worldwide organization, Andersen Consulting has more than 32,000 people in 152 offices and 47 countries.

Many of our competitors focus on providing niche services such as offering strategic advice or building computer systems to support the business. Andersen Consulting is different; it is a global, full service provider of business integration services. We can provide multiple benefits for our clients depending on their needs. When our clients want to invest in information technology or change their strategy and operations, we can help them do that - among many other things. We don't just give advice; we assemble engagement teams that work with our clients to implement and sustain solutions to their needs.

AC encompasses four competency areas (Change Management, Process, Strategy, and Technology) that are used in the engagement teams in combination to provide an integrated business solution to client problems. Rather than addressing a single aspect of a problem, AC finds workable solutions to complex problems as a whole, and supports the solutions into the future. This is what we call "Business Integration", or "BI".

With a centralized training facility that can comfortably house nearly 1800 participants a day, AC has the most comprehensive skills building capabilities in the business world. Located in St. Charles, a suburb of Chicago, IL, the Education Center is visited by consultants from around the world each week.

Andersen Consulting Education (ACE) is a small group of training and instructional design professionals that produce the schools that consultants participate in year-round. Composed of just over two hundred people, ACE produces the vast majority of training presented at the Education Center in St. Charles. The training produced ranges in delivery method from computer-based self-study courses using leading edge technology to traditional instructor-led schools encompassing case activities that simulate true-to-life scenarios.

ACE has four internal areas:

- Development is comprised of instructional designers who are responsible for designing and developing high-quality, cost effective training products.
- Delivery Management personnel are responsible for delivering centralized training and ensure that each session runs smoothly by procuring and coordinating participant attendance, faculty, technical support, materials, rooms, and equipment.

- Management Support is responsible for the support and resources necessary to enable Development and delivery areas to function effectively.
- The Advanced Development Group id charged with creating consistent technology architectures for the development of technology-based education products, particularly with multi-media.

Goal-based Scenarios (GBS)

A GBS is a relatively new approach to training and education that tries to enhance what is learned by making the learning process more directly applicable to the learner. In Goal-Based Scenarios, participants are placed in a simulated situation and given a series of goals to solve. The participants learn by "doing" rather than having to assimilate what they are hearing and try to find a way to assimilate the information in ways that are applicable to their experience. GBS's are a drastic departure from the traditional lecture-based training that has pervaded the training industry for decades.

According to Roger Schank of Northwestern University, attributed as the developer of the original GBS concept, a GBS is...

> "a type of learn-by-doing task with very specific constraints on the selection of material to be taught, the goals the [participant] will pursue, the environment in which the [participant] will work, the tasks the [participant] will perform, and the resources that are made available".

A GBS involves the learning of skills; in this case meaning something that one knows how to "do". Some terms commonly associated with a GBS are: skill, case, fact, domain, and process. As an example, Schank describes the "Broadcast News" program that High Schools have applied to introduce students to the skills necessary to produce their own news show. The students work with newswire text and video news footage to learn how to put together their own show. The end product of the GBS is a videotape of a newscast that the student put together.

When one learns something by doing it rather than hearing or reading about it, the information tends to get assimilated much more thoroughly. Skills are learned within the context of direct application and impact to the learner, rather than as an abstract concept.

Just a few years ago, the vast majority of the training developed for AC personnel was of the traditional "talking head" variety; a lecture-style format that was intended to impart information verbally to a mass audience. With the advent of GBS, this format has been replaced by the students in many ways teaching themselves as participants while involved in the process of solving specific problems and pursuing defined goals.

AC's approach to using the GBS concept uses a "case" company scenario to build the learning environment around. For example, the BAnDS school simulation focuses on the "B&B Beverages" case company, which is an Australian beer brewing company in need of modernization in their production, sales, and delivery support systems and organization.

What was the purpose of the BAnDS school?

Simply put, the purpose of the Business Analysis and Design School (BAnDS) school, and what made it so unique, was the combination of building consultant skills through the use of a GBS and the ability to integrate multiple competency areas to build those skills in one school. Consultants with 30-36 months experience with the firm were taken from the Change Management, Process, and Technology competencies to build understanding of the value added by members of the other competency areas during a Business Integration engagement.

The BAnDS school objectives involved:

- The development of skills among competencies (*Change Management* - organization development & cultural analysis, *Process* - business process redesign & workflow development, and *Technology* - application development).
- Approaching Business Integration more directly in training by building understanding of value added by the other competency areas.
- Enhance the ability to work in cross-competency teams within the Client Engagement Framework.

The impact of the BAnDS school on its participants, based on the key focus areas, can be attributed mainly to its leading edge learning environment, which dramatically shifts the attitude of consultants coming to the AC training facility in St. Charles, Illinois. The participants walk away with skills that can be applied immediately to the engagements that they are currently involved with, and therefore their clients receive the value added by this training immediately.

When considering the BAnDS school in relation to the Business Integration model described previously, we must realize that BAnDS was the first BI school of its kind for the experience level of the participants. Each of three major competency areas were represented on each team, encouraging cross-competency communications and fostering understanding of the value that each competency area brings to the firm.

The school was designed to provide the participants with an understanding of:

- How BI is changing the way Andersen Consulting's people work together.
- How our clients perceive Andersen Consulting.
- Reactions to working with other competencies.
- The value of having firm experts share their client success stories.
- Learning to leverage the firm's rich knowledge base, including the Knowledge Xchange, ENACTS, and "war stories" from peers on their own client engagements.
- Increasing the skills base in the competency areas and how that is evidenced by the increased success on client engagements and higher performance levels.

How was BAnDS built and used?

The development of the school was based around the approach to learning called Goal-Based Scenarios that we discussed earlier. BAnDS was designed to be a 5 day school and consists of 2 primary "modules"; Business Process Redesign (BPR) & Design.

The BPR module lasts 2 days. Participants work in cross-competency teams of twelve members to re-engineer 3 separate Business Processes that are critical to our case client's success (Manage Customer Relationships, Produce, and Fulfill Orders). Each twelve member team is further divided into three cross-competency subteams, each one focusing on one of the three business processes. The three subteams must work with each other, as well as the client, to analyze the current business processes, identify requirements and redesign the business processes of their assigned areas. Near the end of the first two day module, the subteams need to come together to develop an integrated business solution.

The Design module lasts 3 days. Participants evaluate the same case in greater detail, under the pretense of "time has passed", shifting from a common focus to a more competency-specific focus. Each twelve person team then divides into the three competency groups used for this engagement.

The Change Management Team faces the task of redesigning the organizational structure and jobs of the company's sales organization. The Process Team is charged with the design and tailoring of a packaged application solution that addresses the company's systems needs for one of the business processes (Fulfill Order). The Technology Team needs to design a laptop custom

systems' solution automating the salesperson's job requirements. As you can see, each task takes some requirements from the design of the other teams solutions, therefore communication and cooperation is of paramount importance throughout the process. This understanding of the value of communication and cooperation from the perspective of successful experience are aspects of the GBS method that are extremely valuable to the participant, but virtually impossible to teach by lecture.

At the end of the second three day module the teams need to come together to design an integrated release strategy for managing the rollout of the substantial changes to our client's organization. As with the first module, participants are tasked with determining how to communicate with and develop a partnering relationship with a client.

The case materials are based upon a wide range of inputs from several Best Practices engagements. Best Practices is a tool that allows lessons learned from each engagement to be shared electronically by any and all consultants. It is a way to ensure that the good techniques continue to be used as widely as possible. The case materials provide the participants with inputs, examples, and best practices that are rich with information, issues, complications, techniques, challenges, and opportunities, in order to most accurately simulate the conditions under which a true engagement takes place.

The school contracts external (non-AC personnel) managers to assume various B&B client roles. The intent is to provide participants with real-life client personnel to increase the authenticity of the school. These "clients" used in the school react in much the same way as Andersen's clients, because they are, in fact, have experience with the industry used in the school.

During the school AC Associate Partners, Managers, and Seniors will provide participants with coaching and support. Throughout the school, the participants are provided with feedback from both the clients and the coaches through formalized checkpoints and informal meetings. Another invaluable source of feedback and information comes from a participant's peers at times throughout the school as well.

Through the entire school, a technology tool, a program called Integrated Performance Support for Learning (IPSL), with access to Firm experts and the knowledge databases is available throughout the school. The IPSL acts as a process guide and resource that provides information access that is tailored to a participant's current needs in the school. The information that is available through the IPSL is the same information available to the consultant in the field, thereby reinforcing the value of the use of the Knowledge Xchange, ENACTS database, and other provided tools.

Evaluation

The success of the BAnDS school can be seen in the results from participant surveys and follow-up responses. The method of evaluating the effectiveness of the BAnDS school, and subsequently the GBS format itself, revolves around gathering participant assessment responses. This information is gathered several times; once within the structure of the school itself, and later at 3 month, 9 month, and 18 month intervals.

The feedback gathered during the school itself involves pre- and post-participation surveys. Prior to beginning the school, each participant is asked to complete a form that allows them to rate their knowledge/effectiveness in specific areas of interest that will be addressed by the school. For instance, one item that they rate themselves on is "Identify potential Business Integration implications/barriers to change (people, process, technology)". Considering their own capabilities in reference to this statement, they can rank their personal perception of their effectiveness in this area on the following scale.

No Ability	Low Ability	Some Ability	Job-Ready Ability	Advanced Ability
No understanding of, or ability to apply competency	Understanding, but little ability to apply competency	Some ability to apply competency, but not confident to apply on the job	Able to confidently apply competency on the job	Mastery-level ability--able to coach others on competency

Upon concluding the school, each participant is again asked to rate themselves in each category. These results indicate that the average participant goes from "No Ability" to the "Job Ready" category in cross-competency capabilities. As follow-up surveys of the participants of the first two BAnDS schools show, consultants working on BI engagements for diverse clients around the world credit a portion of their success to having attended the BAnDS school. The responses to the prior and post school surveys indicate a dramatic improvement in the participant's perceived ability to perform the tasks rated.

The school is too new for results to be gathered on the 9 month and 18 month evaluation cycles. The results of the 3 month evaluation, however, are highly favorable and show that, while some skills can be lost when they are not needed in the field, the attitudinal gains made by the participants are still as valuable as they were immediately after the school was attended.

The evaluation for the 3 month review was structured as a survey that was electronically sent via email to the participants of the school. The topics on the survey included multiple questions intended to cover major categories such as Business Integration, Firmwide Knowledge capital, Client Business Objectives, Customer Application Development, and others. The questions were worded to gauge agreement with a given statement.

In addition to the ranking responses, the participants were given the opportunity to respond to a number of questions in writing. These questions ranged from inquiring about their perception of the effectiveness of the faculty and "clients" to asking about their habits in using the tools that they were, in many cases, introduced to for the first time while acting as participants in the BAnDS school. The Knowledge Xchange is another electronic tool that Andersen uses to share information about engagements and solutions that have been used to solve client's problems that may be useful to others.

Some examples of the questions used:

- "During BAnDS you worked with members of other competency groups. How are you continuing to learn about the capabilities provided by other competency groups?"
- "Considering your Business Integration experience in BAnDS, what is your perception of how BI will impact the long-term success of the Firm?"
- "How do you now use the Knowledge Xchange (including the ENACTS database) and Firmwide experts as resources for delivering client value?"
- "What experience in BAnDS have you found most useful as you work towards understanding client's business objectives for an engagement?"

Responses to these questions are captured and used to evaluate the success, and degree, of the original objectives of the school itself as well as how much value the participants find in having had the BAnDS school experience in their future engagements.

A comparison of the data from prior to participation in the BAnDS school to the recent responses to the electronic survey indicate the continued growth of the participants and their enhanced success in engagements requiring multiple competencies. The responses in each case are based on a five point scale, from zero to four. For instance, the growth experienced by the participants in the September conduct of the BAnDS school is shown in the following table.

By Competency	Before	After	Growth
Overall	2.44	3.51	0.82
Change Management	2.58	3.52	0.94
Process Management	2.56	3.68	0.65
Technology	2.29	3.52	1.02

This data reflects averages of the responses provided by participants prior to the school and after follow-up surveys have been returned and calculated. The data above is based on responses reflecting the completion of the BPR module of the school. The table, based on the previously mentioned scale of zero to four, shows that the overall improvement has been substantial over the months since the school.

The same data gathered to reflect the second module of the school broken down by the competency area that the participants took part in shows comparable improvement.

By Role in BAnDS	Before	After	Growth
Overall	2.41	3.49	1.08
Organization Design	2.47	3.24	0.77
Conference Room Pilot	2.24	3.64	1.40
Custom Architecture	2.51	3.59	1.08

The increased growth, on the average, that is reflected in these responses is, we feel, indicative of an enhanced awareness of the need for cross-competency communication, and an increased appreciation of the value provided by the members of the other competencies on an engagement.

Conclusions

To remain a viable and relevant resource, Andersen Consulting Education initiated a process of re-engineering the training strategy of the firm. The ACE mission is to enable Andersen Consulting people to excel through education. The training and education that we produce must enable our people to identify their own performance needs, acquire training and information on a timely basis and convert their learning to a business solution.

The re-engineered Andersen Consulting Education strategy accommodates the advancements taking place in educational approaches, technology and processes. The use of these advancements is essential to fulfill the changing demands of the practice in the most timely and cost-effective manner possible.

Several guiding principles have been identified for redesigning training programs to align more with the firm's strategy:

- Increased emphasis on developing specialists, rather than generalists
- A new instructional approach, focusing on skills acquisition rather than knowledge acquisition
- Increased emphasis on a business integration perspective
- Strengthened core competency alignment

These guiding principles, together with the Andersen Consulting Education mission and vision, give the background for the Technology-enabled Performance Enhancement School design and development projects like BAnDS. Through the use of GBS training techniques, Andersen Consulting's professionals are equipped to maintain the cutting edge in their abilities and to continue leading the industry in providing value to our customers.

Job Instruction Reconsidered: Usefulness and Limitations of the Dominant Type of Structured OJT

Jan A. De Jong
Utrecht University, the Netherlands

In recent publications the importance of on-the-job training for modern companies is recognized, and proposals are offered for structuring this type of training, in order to make it more effective. In recent literature, the dominant approach to structuring on-the-job learning is the 'experienced-colleague-as-an-instructor' or, more briefly, the 'Job Instruction' model. In this paper the organizational and educational premisses of this dominant model are being scrutinized.

Although in the twentieth century school-based general and vocational education has gained importance in preparing young people for the world of work, the magnitude and importance of on-the-job training have not diminished. Some authors claim learning on the job to be impractical because of the opacity of the work process and because of the risks involved, and un-educative because of the firm-specificity and therefore non-transferability of the learning results. According to Van Onna (1992) recent (computer) technological developments in trade and industry make on the job learning both more possible and more indispensable. Whether this learning has to take place in the traditional pattern of Job Instruction, is a matter of doubt.

Job Instruction

Let us start with a little history. Job Instruction has its origins in the first an second World War. In the first World War C.R. (Skipper) Allen was charged by the Emergency Fleet Corporation of the U.S. Shipping Board to train 450.000 new employees for the shipbuilding industry in next to no time. On the basis of Herbart's instruction theory he developed a four-step method: preparation (show), presentation (tell), application (do), inspection (check). The training was carried out by the direct supervisors, after receiving a train-the-trainer course. The training was to be based on a precise task analysis. In the second World War the American training experts of the military training-consultancy group 'Training Within Industry Service' met comparable challenges. They were, for example, confronted with a gigantic lack of skilled opticians for the manufacturing of optical precision instruments. The usual training for a fully qualified optician took five years. That time was not available. The solution was found by dividing the job of the optician into several isolated operations and by training employees to carry out only one of these operations each. The duration of the training per person was thus reduced to several weeks. For this kind of so-called Job Instruction, a slightly adjusted four-step method was developed, which was passed on to groups of 10 prospective instructors in an elementary course taking five two-hour sessions (the so-called Job Instructor Training). The instructors learned to analyze a task by different steps and to determine "key points" (for instance concerning safety). Furthermore they learned the four steps of instruction: 1. Prepare the worker, 2. Present the operation (per step and while paying attention to the "key points"), 3. Try out performance (during which the learner is asked to explain the "key points") and 4. Follow up. Thanks to this format, in less than four years (1941-1945) more than a million on-the-job instructors could be trained (Training Within Industry Services 1945, p. 126). Maybe because of the rise of the human relations paradigm in training, Job Instruction received little attention in literature on training and development after the fifties. Recently there seems to be a revival of interest in the topic of on-the-job training. There is a general recognition that training should be closely connected to the actual work performance. A milestone is the book 'Structured On-the-Job Training', by Jacobs and Jones (1995).

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Jacobs' and Jones' structured OJT can be considered a variant of Job Instruction as developed by Allen and the TWI Service. It too starts with a task analysis. It lists five training events: 1. Prepare the trainee, 2. Present the Training, 3. Require a response, 4. Provide feedback, and 5. Evaluate Performance. Comparison of those events with the four steps of Job Instruction shows just a minor deviation. An interesting contribution of Jacobs and Jones is their distinction (inspired by Swanson and Law, 1993) between three types of structured OJT, with varying sub-steps per event: structured OJT for managerial training, structured OJT for technical training, and structured OJT for awareness training. As an illustration, the sub-steps for the events 'Present the training' and 'Require a response' within the managerial training format are presented below (Jacobs and Jones, 1995, p. 111):

2. Present the training
   a. Position the trainee.
   b. Present an overview of the model or process.
   c. Present examples of the model or process in use.
   d. Explain the parts of the model or process.
   e. Demonstrate techniques applying the model or process.
   f. Summarize the entire task.

3. Require a response
   a. Ask the trainee to explain purpose and rationale.
   b. Ask the trainee to describe the model or process.
   c. Ask the trainee for examples of the model or process in use.
   d. Ask the trainee to explain the parts of the model or process.
   e. Ask the trainee to demonstrate techniques.
   f. Ask the trainee to summarize the task.

Job Instruction, as worked out by Allen, the TWI group, Jacobs and Jones, and others (Connor, 1983, Broadwell, 1986, Rothwell and Kazanas, 1990), with varying labels (Planned On-the-Job Training, Structured On-the-Job Training), can be considered an instructional strategy for on-the-job training. It is based upon two suppositions:

1. in order to have employees realize adequate job (task) performance, supervisors should have a detailed analysis of job (task) procedures at their disposal.
2. in order to have employees realize adequate job (task) performance, supervisors should use a direct instruction model.

Under what preconditions are those suppositions true?

Do We Need Task Analysis?

Should tasks be analyzed before an employee can successfully learn to perform that task? The answer depends upon the nature of the job and upon the organizational paradigm one adheres to.

Jobs, and the organizations in which they are embedded, differ in important aspects. McKenna and Wright (1992, p. 902) warn against the 'organizational tunnel vision'. According to them industrial and organizational psychologists have 'failed to consider seriously the possibility that not all organizations are the same, that there may be fundamentally different organizational types, species, or configurations that affect and are affected by individual behavior in different ways'. And: 'Perhaps the most elegant and comprehensive taxonomy of organizational species is that of Mintzberg' (McKenna and Wright, 1992, p. 992). Turning to the writings of Mintzberg (1979), we can learn that in some work organizations the planning of tasks is clearly separated from their performance. A preparatory staff or the supervisor does the planning, figuring out what is the best procedure for performing the task. This procedure is prescribed to the employees responsible for task performance. This is the coordination mechanism of machine bureaucracy: standardizing the work process. This is the type of organization that depends heavily on task analysis. In other types of organizations (or in other types of jobs or tasks), the work process may show more variation. Either the supervisor coordinates the task performance, thus eliminating the need for employee training as is the case in the simple structure

(coordination mechanism of direct supervision) or the employee does the planning himself, taking the ever varying task specifics into account as is the case in the professional bureaucracy or in the adhocracy (coordination mechanisms: standardizing of qualifications or mutual adjustment). In the latter cases maybe a task analysis of the general planning process can be established, but most of the expertise required for adequate task performance cannot be recorded in the form of operations and key points.

But not just the type of task, job, or organization determines the answer to the question whether job analysis is needed. Also one's organization theoretical paradigm influences the answer (see McKenna and Wright, 1992). If one embraces the machine metaphor, task analysis is a natural thing to do for supervisors. If one accepts, for example, the brain metaphor, it might be more adequate to focus on creating self-directed work teams, and stimulating self-organization as an alternative to procedural prescription. Recently, the brain metaphor has gained influence in literature. Attempts to create learning organizations have important consequences for the role of the supervisor. Mink, Owen and Mink (1993, cited in Zuber and Miller, 1995) describe a role shift from a prescription model to an empowerment model of coaching. In the prescription model the supervisor/coach gives goals, defines roles, writes procedures, controls behavior, evaluates performance, directs, and relies on extrinsic motivation. In the empowerment model the supervisor/coach develops consensus about goals, lets roles evolve, lets procedures evolve, emphasizes quality as a way of life, focuses on ways to improve processes, collaborates, and increases initiative and internal motivation.

It is evident that Job Instruction fits in a control oriented approach to organization design. Whether such an approach is adequate in a specific situation can only be decided by analyzing that situation, diagnosing the need for a uniform work procedure. The brain metaphorical hype might blind us for the possibility that such a need is quite common and legitimate. Another consideration that might be relevant in this context is that training a supervisor to perform task analyses might be considered an empowerment of the supervisor, enabling local teams to change procedures adaptively. Research on variants of Job Instruction has more than once lead to the observation that the involvement in task analysis is a very illuminating process for supervisors and experienced workers and may lead to important improvements in the work process (De Jong, 1993, De Jong and Versloot, 1994). Thus, quite unexpectedly, efforts within the context of the prescriptive model may lead to results, pursued in the empowerment model.

So do we need task analysis? The answer is: yes, but a. restrict it to tasks or task elements that benefit from standardizing and b. involve the work team in the analysis and, continual, development of work procedures.

Do We Need Direct Instruction?

The second characteristic of Job Instruction is the use of a direct instruction procedure for teaching the work procedures. The term direct instruction is a modern name for a procedure used for skill training, which has proven to be successful in primary schools, for example for learning to read (Rosenshine and Stevens, 1984). It is characterized by a dominant role of the teacher, who in a rather formal manner tells and models the skills to be learned, then guides the pupils in practicing the skills, providing corrective feedback, and finally has them practice more independently. In history several procedures have been developed for skill training, but they differ just in details. The essence has been described by Anderson (1980) in his three phase model. In the first phase (the cognitive phase), a declarative knowledge base is formed, comprising information relevant to task performance. In the second phase (the associative phase), the information in the knowledge base is transformed into procedural representations: successive actions that have to be performed are demonstrated and practiced. In the third phase (the autonomous phase), performance is accelerated and automatized. Instructor activities are presenting information, demonstrating, eliciting performance, providing feedback, and coaching. Those are exactly the activities expected of the on-the-job trainer in the Job Instruction model.

Do employees need direct instruction in order to successfully master new tasks? The answer depends upon the nature of the learning objective and upon the learning paradigm one adheres to.

Clearly, if the learning objective happens to be skill attainment, the direct instruction model is

an obvious candidate. Interestingly, Jacobs and Jones tune their Structured On-the-Job Training model to awareness training and management training, where performance does not involve hands-on activity, but forms of symbolic activity: describing models and processes, and providing examples. Apparently, Jacobs and Jones consider the direct instruction model an appropriate choice for both skills and knowledge. Are they right? For which learning objectives is direct instruction the appropriate choice, and for which learning objectives should another choice be made? An author who has dealt with this question is Romiszowski (1981). He claims there are essentially two general modes of learning: reception learning and discovery learning, corresponding with two general instructional strategies: expositive strategies and experiential strategies. What I called direct instruction is clearly an example of the expositive strategy. Romiszowski further claims there are two classes of learning objectives, both divided in subclasses: 1. knowledge, divided in facts, concepts, principles, and procedures, and 2. skills, divided in reproductive and productive skills. Reproductive skills consist mainly of the execution of procedures, whereas productive skills ask for the use of strategies, which should be adapted to the specific action context. Romiszowski provides several heuristics for allotting instructional strategies to types of learning objectives. For the learning of principles, for example, experiential strategies should be preferred, whereas in the case of procedures (especially when not clearly based upon a principle), an expositive strategy is more adequate. In the case of skill learning, reproductive skills ask for a different approach from productive skills. Reproductive skills ask for an expositive strategy, whereas productive skills ask for a specific combination of experiential strategies and expositive strategies (at first discovery learning for learning the principles, next reception learning while the strategy is demonstrated and practiced, and finally discovery learning while exploring new applications). It may be concluded that the direct instruction model, as a specimen of the expositive instructional strategy may be better suited for some learning objectives (facts, reproductive skills) than for others (principles and productive kills). So it is important to analyze the competencies to be trained in order to provide for the right support of the learning process.

But not just the type of competence to be mastered determines the answer to the question whether direct instruction is needed. Also one's learning theoretical paradigm influences the answer. Recently, constructivism is presenting itself as an alternative to the more traditional 'objectivistic' paradigm of learning (see f.e. Duffy and Jonassen, 1991). Objectivist theorists are portrayed as believers in objective knowledge, which is transmitted through education or through direct contact with the world. The learner's role in the learning process is relatively passive: learning is the gradual strengthening of associations between cognitive elements as a result of cumulating experience. Constructivist theorists are portrayed as believers in subjective, personal or culturally bound knowledge, which is actively constructed by the learner in attempts to make sense of experience. Whereas objectivists try to shape the learner's knowledge by presenting elements in an orderly fashion, and providing specific feedback, constructivists rely on inducing the learner in a task environment where he or she has to experiment and interact in order to construct a satisfying mode of dealing with the task. According to Cobb (1994) and Phillips (1995), two subtypes of the constructivistic paradigm can be found: one stressing the sociopolitical nature of knowledge construction, and the other stressing the individual creation of knowledge. The three paradigms thus conceived closely resemble the three paradigms of knowledge and instruction, sketched by Farnham-Diggory (1994): the behavior model, the development model and the apprenticeship model. The behavior model (which corresponds to the objectivistic paradigm) conceptualizes learning as an incrementation process: 'accumulating something, getting better, getting faster, getting more, and so forth' (Farnham-Diggory, 1994, p. 464). The developmental model (which corresponds to individual constructivism) conceptualizes learning as a qualitative shift in personal theories and explanations as the result of experienced anomalies. The apprenticeship model (which corresponds to social constructivism) conceptualizes learning as acculturation into the world of the expert (whose knowledge is often tacit and situational), as a result of participation in that world. It is surprising that the three prototypes of on-the-job training, as described by De Jong (1991) - on-site instruction, on-site study, and on-site practice - mirror these three paradigms on learning.

It is clear that the direct instruction approach of Job Instruction fits best within an objectivistic, behavioral paradigm. This does not imply, however, that the constructivist paradigm precludes teaching by transmission: 'On an alternative reading the constructivist maxim about learning can be

taken to imply that students construct their ways of knowing in even the most authoritarian of instructional situations . . . ' (Cobb (1994, p. 4). Cobb even calls 'the very notion of a constructivist pedagogy or of constructivist teaching a misnomer that reflects a category error'. Constructivism should be viewed as a perspective from which one can perceive otherwise overlooked aspects of learning. The recent constructivistic revival may draw our attention to the personal and cultural knowledge construction processes at the workplace, the often implicit and situational nature of that knowledge, and the need to link up instruction with those processes. Job Instruction thus can be viewed as a combination of tools to be used in the construction of shared knowledge of the work process. The supervisor is one of the actors in this process, besides the experienced and new workers and outside providers of knowledge. Whether that knowledge should be transferred by the supervisor or by experienced colleagues, via oral or written instruction, in a formal way or in the process of working, or maybe collected by the learner himself, is dependent upon the nature of the knowledge, upon the culture, upon the preknowledge of the learner etcetera. The important thing is that effective cycles of social and individual knowledge construction are kept turning, aimed at continued improvement of work quality and worker qualification.

The question was: do we need direct instruction? The answer is: maybe. But what we do need anyhow is to find ways to improve employee expertise, based upon a continued search for better insights, strategies and procedures related to the mission of the organization. Direct instruction is one of those ways, especially useful for reproductive skill training and the transfer of outlined insights and models.

The Future of On-the-Job Training

Our inquiry has yielded a broader perspective on issues of on-the job learning and on-the job training. The first element of that broader perspective is the recognition of different coordination mechanisms for securing good performance. Before choosing a strategy for structuring on-the-job learning, one should be clear on the division of responsibilities for the quality of work output, work procedures, work processes and trouble shooting, and the maintenance of worker qualifications. Different answers on these questions lead to the choice of different strategies for structuring on-the-job learning, as Versloot and De Jong (1994) have elaborated. Some of these strategies ask for task analyses by supervisors or performance experts; others ask for systems for exchanging insights and experiences within the organization; still others ask for exchange of insights and experiences of professionals working in different organizations.

The second element of the broader perspective is the recognition of the roles of the individual employee and the work team in the learning process. The instructor role of the supervisor or the experienced colleague should be supplemented with active inquiry by the employee and the sharing of situated and tacit knowledge by the work team members.

Both elements point to the need for a more comprehensive view on knowledge management in organizations. Developments in the field make this need pressing. The competencies to be learned for the modern workplace are often more complex than the routines learned in the traditional Job Instruction programs. They involve higher levels of cognitive processing that should be practiced in authentic complex environments. Also, in the modern workplace, work and learning get intertwined. According to Van Onna (1992, p. 130), 'in the case of sophisticated technologies, the products are usually not fully developed, tested, and adapted to the wishes of the users upon delivery', so 'the workers who will have to operate the new technology should change with it, so that they learn to discover new possibilities for applying and shaping that technology'. Other authors as well spot the convergence of the realm of learning and the realm of work. Forrester, Payne, and Ward (1995, p. 303) cite Gelpi (1986, p. 233): 'Education is becoming a part of the social and productive process and not . . . only an initiation to work. The productive process is changing permanently and this means a need for flexibility, mobility, innovations, and psychological equilibrium to deal positively with these changes; this means also permanent creativity in education, not only to pick up skills, but to understand the complex nature of the emerging productive process and its relationship to the working and non-working environment. This creativity is reserved not only for the top managers, it has to become the patrimony of the entire workforce of the productive structure'. This is why the study of

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different phenotypes of on-the-job training has substantial relevance for both educational institutions and organizations in commerce and industry.

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Structured On-the-Job Training Competencies

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A survey of U.S. line experts and training professionals, with response rates of 59% and 57%, identified competencies needed by both groups in supporting structured on-the-job training. Training professionals identified 13 highly important competencies, primarily in the "analyze" and "develop" steps, with none in "evaluate." Line experts identified 21, primarily in the "deliver" step, with almost none in the other steps. Gaps between desired and current levels of expertise were also identified.

There is an ancient proverb: Knowledge is a treasure, but practice is the key to it. On-the-job training (OJT) has a long history of use because of its potential for high transferability compared with other training methods; an identical or similar setting exists between work and training. Malcolm (1992), stating the results of a Honeywell study, found that "about 80 percent of all critical job skills [of managers] are acquired...on the job" (p. 58). OJT has been recognized as the most common form of training in business and industry (Lewick-Wallace & Jask, 1988). Carnevale and Gainer (1989) viewed on-the-job training as "the principal means by which technical, economic, strategic, and regulatory changes are gradually integrated into the workplace" (p. 15).

In spite of its pervasive use and criticality, there are serious concerns about OJT. Learning by doing is often hit-or-miss training with no guarantee of what tasks a worker will learn (Connor, 1983). OJT has been regarded as cheap and easy to implement without planning (Goldstein, 1993). This kind of training may, however, waste work resources. To counter this concern, DeJong & Versloot (1994), Jacobs (1992a), and Rothwell and Kazanas (1990a & 1990b) emphasized the importance of structuring OJT, thus differentiating it from unstructured OJT, which is "haphazard, incomplete, and too disruptive in the workplace..." (Jacobs, 1992a, p. 500).

Definitions of SOJT

The importance of structuring or organizing OJT has been emphasized for many decades (Engel, 1958; Goldstein, 1993; Nadler, 1979). Engel (1958), cited by Kruger (1985), defined OJT as

> systematic learning through the actual performance of an occupation in the environment in which the job will be performed....a process of accomplishing the steps in the written training program, over a period of time, together with an evaluation of accomplishments and progress at noted intervals. (p. 11)

Jacobs has also made an effort to identify SOJT's boundaries. His definitions of SOJT have changed during the last few years: "the one-to-one process of providing the knowledge and skills to perform a specific task within a job" (1992a, p. 500); "the planned process of transferring expertise from experts to novices in the work setting" (1992b, p. 2); "the planned process of developing task-level expertise by having an experienced employee train a novice employee at or near the actual work setting" (Jacobs & Jones, 1995).

"One-to-one process" in the first definition implies that trainee numbers should be limited to less than four in most cases (Jacobs, 1992a) because OJT includes close observation and guided

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practice. But Sullivan and Miklas' (1985) case study of successful OJT showed that interaction is needed among all trainees and other staff involved for an OJT program to be successful; the type and extent needed depends on the task and duration of the training. Both Rothwell (1991) and Senge (1990) have pointed to the importance of team learning; thus, a whole work-unit may have to pursue OJT, especially when the tasks require interaction among the unit members.

In the second definition, the notion that expertise on a task is transferred from experts to novices may not be appropriate considering adult learning theories. Often expertise in adult learning is self-generated by learners themselves with facilitation from others who may be instructors. Trainees are not necessarily novices, especially when the training is designed to obtain context knowledge rather than subject matter expertise, for example, a newly hired school bus driver may have been a commercial bus driver. What he or she needs is to become familiar with geographical features on the bus route and the characteristics of his or her passengers--the students. Adult learners should be analyzed to determine their expertise obtained through previous experiences before attempts are made to train them.

SOJT does not have to be restricted to task-level expertise as stated in the third definition. In Sullivan and Miklas' (1985) study, the OJT content was the bank assistant-manager's job intertwined with many individual tasks. Except for simple and repeated tasks, it is more important to understand how to relate individual tasks to each other in a project or job than to develop individual task expertise. Jacobs (1992a) himself recognized that "some observers view the 'project' as the most appropriate unit of work analysis, as opposed to the task, which they believe does not represent the expectations of today's work-place" (p. 511).

Considering the above concerns, the present authors have defined SOJT as:

> Planned training to develop workers' level of procedural and contextual knowledge and skills required in performing specific tasks/projects, primarily through observation and practice on or near the job site, guided by an experienced line worker who has the necessary instructional competencies.

As with other formal training methods, SOJT should be planned with the involvement of top management, line managers, and the training coordinator to promote the effectiveness and efficiency of the program (Sullivan & Miklas, 1985). Top management involvement includes establishing an organizational policy that guarantees ongoing company-wide support (i.e., rewarding employees, relieving workload for OJT practice, and so on).

There is a Korean maxim which emphasizes the effectiveness of observation in learning: Hearing one hundred times is not as good as observing one time. But an OJT trainer must be aware that his or her behaviors may be automated and so fast that the trainee cannot follow them. The behaviors may not be able to be done without expertise obtained over a long time with repeated performance. The OJT trainer should know the key portions of learning theories and learner-centered instruction. In the guided practice stage, OJT instructors should also supervise the trainees' performance for the safety of people and equipment.

The concept of procedural knowledge is based on Anderson's (1985) cognitive model. Anderson divided knowledge into two levels: (a) declarative knowledge about facts and things, and (b) procedural knowledge about how to do something. For example, declarative knowledge about my car includes certain facts (there is a gear stick, brakes, and an accelerator) and descriptions (e.g., how to change speed). The procedural knowledge includes actually being able to change the speed, not just describing how it is done. Anderson (1987) was interested in developing procedural knowledge from declarative knowledge, while producing fast, accurate, and flexible routines of high performance.

Besides these cognitive abilities, psychomotor skill is also needed in performing tasks. Declarative knowledge and psychomotor skills are primarily developed through off-job training and/or self-directed training. Procedural knowledge connects the declarative knowledge to the behaviors according to the context cues in the work setting; thus, OJT is needed to develop procedural knowledge.

Mangum (1985) compared the pros and cons of OJT and Off-JT according to the situation, demand, and constraints. This may be like comparing bread and butter, both of which have different functions and different dimensions and characteristics. OJT and Off-JT should be

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integrated to compensate for their weaknesses and to complement each other. Without obtaining declarative knowledge through Off-JT, OJT cannot be effective because trainees do not know what to do. Without OJT, the content knowledge cannot be applied well on the job. For example, Rackham (1979) reported a case of sales training in which 35 salespersons' performance was not improved after conventional classroom teaching. The problem was solved with a program designed to provide branch managers with methods for analyzing selling skills and systemically training their salespeople on the job.

Steps in Conducting SOJT

Engel (1958), Gold (1981), and Stokes (1966), reviewed by Kruger (1985), emphasized the importance of structuring OJT for efficient processes and effective results. Kruger (1985) summarized the steps and the specific actions required within each step. The OJT phases include: prior to instruction, instruction, presentation, application, and follow-up. Jacobs and Jones (1995) provided an OJT process model: decide whether to use SOJT; analyze the tasks to be learned; select, train, and manage the trainers; prepare training modules; deliver the SOJT; and evaluate and troubleshoot the SOJT. These models include similar steps even though they used different terminology.

The above models show the sequential procedure, from selecting OJT as the training method to follow-up steps. Jacobs and Jones' (1995) OJT process model is a single loop. But the procedure does not have to be sequential. When the same or a similar program has been implemented before, the analysis step can be skipped or simply adjusted. Based on formative evaluation, the order of steps can be switched or the same step repeated.

The present authors used a traditional systemic instructional model consisting of six stages: analyze, design, develop, plan for implementation, deliver, and evaluate. The personnel involved in each sub-step are included. Line experts are employees who have sufficient knowledge and skills to perform a specific job anywhere in the organization. (See Table 1.)

Some authors (Kruger, 1985; Marquardt, 1976) have pointed to a major problem in many informal OJT efforts: line experts, who are often charged with implementing OJT, are not prepared in instructional knowledge and skills. One possible response to this problem is to encourage subject matter experts who are responsible for OJT to take a train-the-trainer program specifically designed for OJT (Jacobs & Jones, 1995). Such a program would be strengthened if competencies needed by line experts for structured on-the-job training (SOJT) were identified, along with those competencies needed by human resource development professionals to support line experts who are doing SOJT. This model (Table 1) was used in the study reported here to identify instructional competencies needed for performing each step, as well as to assess the gap between current expertise and desired expertise on the part of line experts and training staff professionals.

Methodology

Surveys were used to gather the data for this study. This section will describe the population and how the sample was selected; the procedure used to conduct the survey; and how the data were analyzed.

Population and Subjects To identify SOJT competencies, the target populations were training professionals and line workers who had conducted SOJT. To identify a sample, a pre-survey was used. First, the national directories of the two major training-related professional organizations were used to select 200 training professionals at random--American Society for Training and Development (ASTD) (150) and the then-named National Society for Performance and Instruction (NSPI) (50). A cover letter was sent in August, 1994, describing the purpose of the study and our definition of SOJT. A form was also enclosed for respondents to provide the

Table 1
SOJT Steps and Personnel Involved

Step	Personnel
1. Analyze	
Specify organization goals	MN*
Determine training climate	TP**
Analyze the target tasks/task cluster and required knowledge, skills, and attitude for the performance	TP, LE***
Analyze trainee knowledge/skill levels, learning characteristics, and personality	TP, LE
Present training needs and goals to management for approval	TP, LE, MN
2. Design	
Set objectives	TP
Determine sub-steps of delivery (explain, show, part/whole practice)	TP, LE
Determine delivery media (job guide, CBT, video, one-to-one, etc.)	TP, LE
Determine evaluation methods (written test, performance check list, on-the-job performance)	TP, LE
3. Develop	
Develop learning materials	TP, (LE)
Develop evaluation tools	TP, (LE)
Obtain feedback and revise	TP, LE
Pilot test and modify	TP, LE
4. Prepare for Delivery	
Check the operation schedule	LE
Plan training schedule (number of trainees, number of trainers and staff personnel, tasks, condition, time, and equipment)	TP, LE
Set the criteria to select trainers, staff, and trainers	TP, LE
Select candidates for OJT instructors, supporting staff, and trainees	TP, LE
Provide train-the-trainer programs for line experts	TP, LE
Arrange the workload of trainers, supporting staff, personnel, and trainees	MN
Provide appropriate social and physical support	TP, LE, MN
5. Deliver	
Place tools and learning materials at training site	TP, LE
Place trainees	TP, LE
Prepare learning place	LE
Deliver training according to design by explaining, showing, guiding practice from whole to part to whole	LE
Monitor the training process	TP, MN
Coach on dissatisfied parts of the trainees' performance	LE
6. Evaluate	
Evaluate the trainees' performance as planned	LE
Evaluate the trainers' instructional performance	TP,(MN)
Evaluate training materials	TP, LE
Evaluate training process	TP, LE
Document training record	TP, LE
Evaluate on the job after training (one week, one month, six months...)	LE, MN, TP
7. Follow-up	
Coach as needed	LE

Return to necessary earlier steps	LE, TP
Recognize trainees' completion of OJT (managers' congratulation, certification, promotion, or pay raise)	MN, TP, LE

*MN: management, **TP: training professional, ***LE: line experts

names and addresses of training practitioners and line workers who had instructional experience in offering SOJT. A response rate of 10% was obtained in this first pre-survey round. From among the non-respondents, 20 were selected at random and in a telephone interview were asked if they had instructed or coordinated SOJT. Sixteen answered that they did not have SOJT instruction experience, and two could not be reached. If this is representative of the other non-respondents (a reasonable assumption), then the 10% response rate provides reasonable assurance that the responses adequately represent the population with such experience. With this experience, two additional samples of 100 each, selected at random from the ASTD directory, as the NSPI directory had provided a much lower response rate, followed in November and December, 1994.

From these three pre-survey samples, 97 training practitioners and 43 line workers with the desired SOJT experience were identified. Personal contacts yielded 28 additional names and addresses, providing a total sample of 111 training professionals and 57 line workers, all of whom were sent the survey instrument. The response rate (with 5 and 3 undeliverable surveys, respectively) was 56.6% of training professionals (n=60) and 59.3% of line workers (n=32).

Instrument Within each step of the SOJT procedure model, several sub-steps were identified, along with the knowledge and skills required for SOJT coordination and instruction, as suggested in the literature. The final survey instrument for training professionals included 80 competency items; the one for line workers, 63. In both surveys, three variables were included: current expertise level, desired expertise level, and importance of a competency. The reliability coefficients were obtained using Cronbach's alpha; all six were very high, from .97 to .99.

Findings

Training professionals identified 13 competencies as important (at least 5 on a 6-point scale) for coordination of SOJT (Table 2, next page).

Training practitioners did not select any knowledge or skills steps in evaluate or plan for delivery as very important. Only three items were below 4 on the 6-point scale: two competencies in administration (record instructional performance of trainers and file test results) and develop computer-based training materials. Paired t-tests showed significant (at $p < .01$) gaps between desired and current instructional expertise perceived by training professionals for about one quarter of the survey items; seven of the twelve items identified as significant were also identified as being critically important. There were no significant gaps in which the current level of expertise exceeded that desired.

Table 2, at the end of the paper, presents the highly-ranked SOJT competencies as perceived by line workers. Table 3, also at the end of the paper, includes many more items than Table 2, even though the total number of items in the survey sent to line workers (63) was fewer than the 80 items contained in the survey for training professionals. Only one item was lower than 4 on the 6-point scale by line workers: connect completion of OJT to rewards ($M=3.73$, $SD=1.55$). The line workers may have thought that rewarding is the responsibility of managers.

Line workers identified developmental needs (the gap between desired and current expertise) on over half of the items, which is more than training professionals identified. Most of the highly-ranked items (15 of 20) were identified with gaps. Thus, line experts did not think that they possessed the desired SOJT competencies.

Discussion

This study identified training practitioners who had coordinated SOJT and line experts with SOJT instructional experience. Only 10% of the pre-survey samples responded indicating that they had SOJT experience. This may mean that the majority of training professionals do not pay attention to SOJT or that, in spite of OJT's prevalence within corporations, it is not approached in the same systemic and structured way as other training methodologies. Their main interest may be on off-the-job training and informal OJT, which has been the most pervasive approach in training for task skills (Carnevale & Gainer, 1989).

Training professionals perceived items of analysis, design, and development as critically important (above 5 on the 6-point scale), but they did not identify items of delivery and evaluation. This may reflect the limitation of training professionals' responsibilities in SOJT to preparation and coordination for SOJT delivery, or they might underestimate the importance of these tasks.

Line experts chose delivery knowledge and skills as critical for SOJT. This might reflect the subtle message delivered to the line experts by the training professionals that limits their input into the process to the delivery phase. It might also reflect the "unconscious incompetence" of the line workers. If they have never received training on the broader role that they could play in SOJT, they may simply not have enough knowledge about the processes to recognize how they might strengthen SOJT by a more active role in the other phases.

A common phenomenon to both groups is that they recognized developmental needs in the competencies that they identified as most important. They perceived that they did not possess the necessary SOJT knowledge and skills needed, although all sample members were identified by themselves or their colleagues as experts.

Recommendations

This study produced a list of important SOJT competencies for training practitioners and SOJT instructors who are primarily experienced line workers, along with a gap-analysis list between desired and current expertise, based on the respondents' self-assessment. HRD managers might choose to use the list to select appropriate candidates for SOJT coordinators and for line worker instructors. In both instances, the list can be used as a basis for self-assessment and development.

Many authors have identified a major problem in OJT practice as being the selection of line workers to fulfill the OJT instructor role without any opportunity to learn how to instruct. The SOJT competency list for line workers might be used by HRD professionals to prepare a train-the-trainer opportunity for SOJT instructors. The list reflects the knowledge and skills that might be incorporated. If such an opportunity already exists, the list can be used to assess existing SOJT train-the-trainer.

Little research has been undertaken in the whole area of OJT (Rothwell & Kazanas, 1990a). One significant problem in conducting OJT research studies at the national level is that it is very difficult to identify SOJT experts. While this study effectively used one approach to identifying a sample, alternative approaches need to be explored.

Another research concern is to move past the global identification of competencies to begin exploring the competencies that would be useful in specific industries and for specific types of workers. It is probable that such industry and role/level competencies will vary considerably. Attention to this issue at the local level should also improve an individual organization's approach to SOJT.

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Table 2
Highly-Ranked Instructional Competencies for SOJT Perceived by Training Professionals (above 5 on 6-point scale: 1 to 6) (n=52 to 60)

Step	Competency	M/SD
Analyze	Observe performance on target tasks	5.47/.68
Design	Set objectives	5.47/.79
Deliver	Respond to trainees' concerns	5.38/.85
Develop	Develop performance measurement	5.32/.95
Design	Arrange learning events (explain, show, guided practice)	5.27/.69
Analyze	Identify needed knowledge, skills & attitudes for task performance	5.24/.88
Develop	Develop evaluation tools	5.23/.89
Analyze	Cooperate with line workers in task analysis	5.22/.83
Analyze	Build relationship with management	5.20/1.05
Analyze	Divide a job into tasks	5.17/.85
Develop	Modify the learning materials according to feedback about the pilot test	5.17/.93
Follow-up	Follow up on the trainees' performance evaluation by line experts after OJT	5.15/1.05
Develop	Listen to line workers' feedback actively after the pilot test	5.08/1.00

Table 3
Highly-Ranked Instructional Competencies for SOJT Perceived by Line Workers (rated above 5 on 6-point scale: 1 to 6) (n=30 to 32)

Step	Competency	M/SD
Deliver	Maintain instructor credibility	5.52/.68
Deliver	Understand SOJT objectives	5.44/.80
Deliver	Respond to trainees' concerns	5.43/.83
Evaluate	Observe trainees' task performance on the job	5.34/.90
Deliver	Deliver SOJT programs	5.34/.94
Deliver	Use effective communication skills	5.31/.78
Deliver	Give feedback about trainees' needs and achievement	5.25/.84
Analyze	Identify safety regulations	5.25/1.08
Evaluate	Determine needs for additional training	5.22/.79
Follow-up	Coach on dissatisfied parts of the trainees' performance	5.22/.87
Deliver	Respond appropriately to trainees' questions and needs	5.22/.94
Prepare	Place tools and/or learning materials at training site	5.19/1.00
Analyze	Assess trainees' current level of expertise on target tasks	5.16/.68
Deliver	Arrange relevant tasks	5.16/.90
Design	Arrange learning events (explain, show, guided practice)	5.16/1.16
Follow-up	Repeat earlier training steps as necessary	5.13/.79
Design	Provide feedback on appropriateness of objectives	5.06/.93
Deliver	Prepare equipment involved in target tasks	5.06/.93
Deliver	Use learning materials appropriately	5.06/1.15
Deliver	Demonstrate good performance	5.03/.84
Analyze	Identify needed knowledge, skills & attitudes for task performance	5.00/1.19

A Proposed Model of Approaches to Frontline Employee Development

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This paper proposes a model describing four approaches to frontline employee development. The model utilizes the political view of organizations in order to embody the divergent interests of managers and frontline employees related specifically to the employee development process. Within this framework, the ways in which frontline employees are influenced, directed, or selected to participate in developmental activities, the roles of managers and frontline employees, and expected employee development outcomes are categorized and described. Implications for HRD research and practice are discussed.

The emphasis many organizations are placing on customer satisfaction means that frontline employees are more critical than ever before. Frontline employees are those who are closest to the actual production of goods or delivery of services in organizations (Jones & Jacobs, 1995). Consequently, organizations have focused greater attention on the development of frontline employees, not only because of their strategic location in organizations, but also because of the many changes and technological advances that are affecting the work and roles of frontline employees (Jones & Jacobs, 1995). One recent study of organizations recognized for excellence in customer service explored how and why they provide good customer service (Jeffrey, 1995). The researchers identified a three part strategy used by the organization that included developing employees into professionals and motivating employees to stay and excel. These and related research findings suggest that organizational changes intended to improve customer service can be successful to the extent that they focus on frontline employee development.

Organizations and researchers have suggested a variety of ways in which frontline employee development should be approached. Some organizations have made distinctions between approaches to frontline employee development based on the role of the frontline manager or supervisor (Heraty, 1995). Managers can either be identified as the one primarily responsible for the employee development process, or identified as working in cooperation with employees to make employee development decisions. Perhaps the biggest trend in the literature is prescriptive approaches that involve both managers and employees in employee development planning activities. These prescriptions usually include identifying the gaps between current capabilities of employees and the core skill level the organization has determined it needs, and collaborative goal setting between managers and employees (see Morovec, 1994).

While many employers recognize the important role managers play in developing employees, Vaught and others (1985) point out that many managers may see employee development as the responsibility of the employee or another department. They suggest that managers may view employee development efforts as disruptive to work processes, may believe that it is not their responsibility to develop employees, may not know how to proceed in developing employees, or may not possess the interpersonal skills needed to actively engage in employee development activity (Vaught, Hoy, & Buchanan, 1985). These and other factors suggest that the role of the manager in the process is important for any classification of approaches to frontline employee development.

Another critical feature distinguishing between approaches described in the literature involves specifying the beneficiaries of employee development. Early writers such as Kellogg (1967) spoke of two basic organizational approaches to classifying the beneficiaries of employee development, with an infinite number of variations and mixes. The first she describes as the "crown prince approach" whereby a few individual stand outs are subjected to employee development opportunities and groomed to take on additional assignments in the future. The

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second she describes as an "opportunity for all approach." In some cases where organizations allow for all employees to participate in employee development activities, development opportunities are extended to both part-time and temporary workers (Picard, 1995).

The outcomes expected by employee development activities serves as another basis for distinguishing between approaches. For example, some companies have identified the satisfaction level of employees and customers, as well as reduced employee turnover, and improved organizational performance as important outcomes of institutionalized employee development practices (Drought, 1995). Others argue that employee development activities are a primary means for organizations to acquire or maintain a competitive advantage (King, 1995; Garavan, 1995). Still others suggest that a versatile and adaptable workforce is most desirable, arguing that employers must shift their employee development philosophy from that concerning a person's immediate employment, to employability; that is, making sure workers not only are prepared for current jobs, but have marketable, up-to-date skills they can transfer from company to company, even from one career field to another (Stuart, 1995).

Need for A Model

While there are a variety of factors contributing to the suggested approaches to frontline employee development, little has been done empirically or conceptually to categorize and describe the different approaches. Current models remain incomplete, failing to encompass the nature of the relationship of managers and frontline employees in the planning process, the beneficiaries of employee development, and the outcomes expected from employee development. A comprehensive model would serve to aid managers and researchers in describing and making judgments about an organization's approach to employee development. What follows is a definition of employee development, a proposed conceptual model of organizational approaches to frontline employee development, and a brief discussion of the implications of such a model for managers and researchers.

Employee Development

Employee development is the process that ensures employees in an organization have the opportunity to acquire the knowledge, skills and attitudes to achieve personal and/or professional growth. Employee development processes emphasizing personal growth are characterized by activities that expand an employees awareness about self or changes in patterns of behavior, attitudes and thoughts related to coping or managing demands that might exceed the resources of the person (Tansky, 1991). Employee development processes emphasizing professional growth are characterized by learning that is broad and related to the total nature of the individual rather than to a specific skill (Tansky, 1991). Some examples of this "total nature" include a person's health and energy; existential beliefs; commitments; social skills; social support; and material resources.

Employee development can then be distinguished from employee training by its purpose and time frame. While the purpose of training is to provide employees with the opportunity to improve knowledge, skills or abilities in order to improve job performance, the purpose of development is to focus on broader issues of personal and professional growth in order to improve individual effectiveness (Tansky, 1991). While training is expected to immediately result in increased or improved performance for the organization, employee development is a longer term process resulting in the expectation of behavioral and attitudinal change of value to the organization. Many organizations hold as a central premise that, if the personal learning capabilities, competencies, and potential of individuals are improved, this will cascade into wider organizational development and improved business performance (Gibbs, 1995).

Approaches To Frontline Employee Development

Approaches to frontline employee development can best be described by viewing the process as a system of government (see Morgan, 1986 p.143). There are a number of reasons why viewing frontline employee development as a political activity is advantageous. First, viewing the employee development process from a political perspective allows one to explore and describe the nature of superior-subordinate relations, conflicting organizational task demands on the one hand and individual needs and interests on the other, and how these conflicting issues might be resolved. Second, taking a political view enables one to see how approaches to frontline employee development are interest-based with managers and employees potentially having conflicting interests. A third advantage of this view is that it accounts for ways in which frontline employees are influenced, directed, or select to participate in developmental activities.

By taking this view, four distinct employee development approaches emerge in the literature, each having a different set of assumptions and prescriptive practices. Figure 1 describes the four approaches which include: laissez faire, co-determined, meritocratic, and autocratic. What follows is a definition and description of the key features of each approach.

Laissez Faire A laissez faire approach to frontline employee development is defined as the system whereby frontline employees plan and participate in employee development activities without management interference, regulation or control. In this approach, the primary responsibility for employee development rests with each employee. Divergent interests of an employee and the organization are most likely reconciled by the individual employee. Under a laissez faire approach, a frontline employee self identifies needs and/or interests, and seeks out related developmental opportunities. Those frontline employees that are self motivated tend to pursue and participate in employee development. Managers on the other hand, have limited involvement in identifying employee needs or interests, or in determining which development activities are appropriate for employee participation. Outcomes of the laissez faire approach tend to reflect employee identified personal and professional growth areas. Examples of these types of outcomes may include: professional fulfillment and satisfaction; self confidence; the ability of the employee to handle stress, tension, frustration, and conflict; or effective career decision-making.

Co-determined A co-determined approach to frontline employee development is defined as a system whereby managers and employees collaborate in planning and participating in employee development activities. Under this approach, managers and frontline employees work together to identify individual and organizational needs and select related employee development activities to address those needs. Divergent interests of the employee and the organization are most likely reconciled through interpersonal processes involving the manager and the employee. Under a system of co-determination, employees are responsible for identifying and discussing personal and professional needs and interests with managers. Managers clarify expected behaviors and information with the employees, and assist them in recognizing their strengths and weaknesses. Managers also assist employees in identifying development opportunities related to the agreed upon needs and interests. Outcomes of the co-determined approach tend to reflect personal and professional growth areas mutually identified by the manager and frontline employee, and those unique to the manager and employee's relationship. Examples of these types of outcomes may include: improved relationship between supervisor and employee; improved morale; certain attitudes and skills that successful employees usually display are developed; or professional fulfillment and satisfaction.

Meritocratic A meritocratic approach is as system in which frontline employees with superior qualities are afforded opportunities to participate in employee development activities. Under this approach, the organization has formalized a way to invest in those individuals who have demonstrated ability or acheivement. Written policies or management rules may determine who qualifies for employee development opportunities. Divergent interests of the employee and the organization are likely reconciled through the use of written policies or rules. Under a meritocratic approach, employees are responsible for meeting the prerequisite requirements before qualifying to participate in employee development activities. These requirements may

include level of performance, level of ability, years of service, or some other form of demarcation. Employees may be required to apply to participate. Managers may serve to inform employees of opportunities, clarify written policies or rules related to participation, and identify those that meet the specified requirements. Outcomes of the meritocratic approach tend to reflect personal and professional growth areas identified by the organization as being important. Examples of these types of outcomes may include: staff preparedness for additional roles; employees developed for promotion; or specialists enabled to use new or different procedures.

Autocratic An autocratic approach to frontline employee development is defined as a system in which managers have the authority and primary responsibility for directing or requiring frontline employees to participate in employee development activities. In the autocratic approach, divergent interests of employees and the organization are most likely reconciled by managers. Under an autocratic approach, either the organization prescribes, or the manager identifies employee needs, and links the employee to related developmental opportunities. Managers direct employees to specific development opportunities that satisfy the organizational requirement of highly qualified employees. Those frontline employees who are deemed by the manager to have developmental needs are required to participate in employee development activities. Employees are expected to participate in prescribed developmental activities. Employees have limited involvement in planning or identifying development experiences. Outcomes of the autocratic approach tend to reflect organizationally identified or manager identified personal and professional growth areas. Examples of these types of outcomes may include: employees' collective attention is focused on certain skills like customer service, CQI tools, interactive skills; the successful introduction of change to the organization; an organizational wide initiative is successfully launched; or employees' understand and carry out organizational policies.

Discussion

The proposed model views the employee development process as a system of government. It enables one to consider the dynamic tensions between organizational needs and employee needs and interests. This view also encourages planners and analysts to recognize the many different outcomes that may be related to each approach specified by the model.

One limitation of this model in organizing approaches to employee development is that it may overstate the power possessed by managers. A case can be made that everyone in an organization has access to some form of power, including frontline employees, which at times might undermine the position power of managers or the structural dynamics of the organization. Despite this limitation, the model brings us one step closer to understanding the different organizational approaches to frontline employee development. Research needs to be conducted to validate the existence of these four approaches. More specific research questions can then be addressed regarding the relationship between the approaches and individual and organizational outcomes. This research area will enable researchers to make judgments about different approaches, and prove useful to HR managers and HRD professionals as they chart directions and highlight obstacles to frontline employee development.

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Table 1

Approaches to Front-line Employee Development

	Laissez Faire	Co-determination	Meritocracy	Autocracy
Definition	A system in which employees participate in planning and participating in employee development activities without management interference, regulation or control.	A system in which managers and front-line employees collaborate in planning and participating in employee development activities.	A system in which front-line employees with superior qualities are afforded opportunities to participate in employee development activities.	A system in which managers have the authority and primary responsibility for directing or requiring front-line employees to participate in employee development activities.
Input: Role of Manager	Limited involvement in the employee development process.	Clarify expected behaviors and assist employee in recognizing their strengths and weaknesses. Assist in identifying development opportunities.	Clarify written procedures and rules. Identify employee standouts who qualify.	Direct employees to specific development opportunities in order to satisfy the organizational requirement of highly qualified employees.
Input: Role of Employee	Self identify needs and/or interests. Seek out development opportunities.	Identify and discuss personal and professional needs and interests with managers.	Achieve prerequisites to participation. Employees may apply to participate.	Limited involvement in the planning process. Participate in prescribed developmental activities.
Process: Who Participates	All interested and self-motivated front-line employees.	All front-line employees participate in the process.	Front-line employees who have met the specified requirements for participation.	Front-line employee identified as needing development participate.
Process: Divergent Interests	Employee has primary responsibility for reconciling divergent interests.	Divergent interests most likely reconciled through interpersonal processes involving the manager and the employee.	Divergent interests most likely reconciled through the use of written policies or management rules.	Divegent interests most likely reconciled by managers.
Outcomes	Reflect employee identified personal and professional growth areas.	Reflect personal and professional growth areas mutually identified by the manager and front-line employee, and those unique to the manager and employee's relationship.	Reflect personal and professional growth areas identified by the organization as being important.	Reflect organizationally identified or manager identified personal and professional growth areas.

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